WEATHER BUREAU MEN AS EDUCATORS.

The following lectures and addresses by Weather Bureau men are reported:

Mr. H. F. Alciatore, March 27, 1906, before the Science Department pupils, Little Rock, Ark., High School, on "The United States Weather Service and the weather map"; two later lectures, in April, are to complete the course.

Mr. E. A. Beals, January 20, 1906, before the Oregon State Academy of Sciences, on "General motions of the atmosphere," with lantern slide illustrations.

Mr. L. H. Daingerfield, March 23, 1906, at the Pueblo, Colo., High School, on "Weather proverbs and superstitions."

Mr. A. J. Mitchell, March 29, 1906, before the Southeastern Stock Growers' Association, in convention at Kissimmee, Fla., on "Climate and stock raising."

Mr. T. S. Outram, February 12, 1906, before the Searchlight Club of the Young Men's Christian Association, Minneapolis; also February 26, 1906, at the North High School, on "The Weather Bureau and its work"; also March 3, 1906, before one of the geology classes in the University of Minnesota, on "A half century of weather service."

Mr. C. F. von Herrmann, March 9, 1906, at the Deichmann Preparatory College, Baltimore, Md., on "How weather forecasts are made," with lantern slide illustrations.

Mr. F. J. Walz, March 3, 1906, at the Highland Presbyterian Church, Louisville, Ky., on "The methods of work of the Weather Bureau."

Classes from schools and academies have visited Weather Bureau offices, to study the instruments and equipment and receive informal instruction, as reported from the following offices:

Binghamton, N. Y., March 7 and 8, 1906, the physiography class of the local High School.

Minneapolis, Minn., March 22, 1906, a large class from the East High School.

Portland, Oreg., November 28, 1905, class from St. Helen's Hall; during December, 1905, and January, 1906, five classes or divisions from the local High School; March 28, 1906, the science class from St. Mary's Academy.

Pueblo, Colo., March 9, 1906, two classes in physiography from the Central High School.

Springfield, Mo., March 8 and 9, 1906, the physical geography class of the local High School, in two sections; also March 10, 1906, the physics class of the Republic, Mo., High School.

KITE FLIGHT OF APRIL 5, 1906, AT MOUNT WEATHER OBSERVATORY.

By Dr. O. L. FASSIG, Research Director. Dated Mount Weather, Va., April 11, 1906.

During the past three or four years an increasing number of national weather services in Europe have been cooperating in an effort to secure simultaneous records of atmospheric conditions at considerable elevations above the earth's surface. The methods employed to raise self-registering instruments thousands of feet into the upper atmosphere have varied at different stations, kites being used at some, while free or manned balloons were employed at other stations. In a few cases kites, small free balloons and manned balloons are sent up from the same station.

Up to the present time the only cooperating station in America has been the well-known Blue Hill Observatory, near Boston, Mass., under the direction of Mr. A. L. Rotch. The plan followed by international agreement has been to send up kites and balloons on the first Thursday of each month, and, when practicable, also on the preceding and the following day. As the national daily weather charts are in most cases prepared from data observed at an early morning hour, ascents are generally made in the morning so as to afford a more satisfactory basis of comparison of observations made at the earth's surface and at higher levels.

For two years or more the Chief of the Weather Bureau has been making active preparations at the recently established research station on Mount Weather, near Bluemont, Va., for the systematic exploration of the atmosphere at high levels; and the instrumental equipment is now such as to warrant the beginning of an attack upon problems which can be settled at a single station, and to cooperate in the investigation of problems which require for their solution the participation of many stations.

Thursday, April 5, was "International Day" for the month of April and marked the beginning of systematic kite flying at the Mount Weather Observatory. The day opened with an overcast sky and a fresh wind from the northwest. At 7:45 a. m., when the first kite of the day was launched, the surface wind was blowing at the rate of about 20 miles per hour (9 meters per second) and the kite rose rapidly and steadily, maintaining a good angle, averaging about 55°, with a length of line varying from 1000 to 5000 feet. Two kites of the Hargrave-Marvin pattern were attached to the wire, the second kite at a distance of 5000 feet from the first. The total lifting surface of the two kites was about 98 square feet (9 square meters). The wire employed was steel piano wire having a diameter of 0.028 inch or 0.71 millimeter.

The greatest elevation reached by the upper kite was 9000 feet above sea level, at 9:45 a. m., with 11,000 feet of line wire out. The elevation of the station is 1725 feet above sea level, and about 1300 feet above the level of the valley. The lowest temperature recorded (34° F.) occurred at an elevation of 7300 feet, the pressure at the same time registering 22.6 inches.

Shortly after the upper kite entered the layer of stratus cloud there was a rapid and marked rise in the temperature from 34° to 45° F. in three minutes. The humidity curve is particularly interesting. Corresponding in time with the sudden rise in temperature after entering the clouds there was a rapid drop in the humidity. The instrumental record is doubtless in error by an amount varying from 5 to 8 per cent in the lower portion of the scale, as the entire range of the humidity trace is slightly over 100 per cent. But allowing for the probable instrumental error the record still shows the existence of a remarkably dry stratum just above the thin layer of stratus cloud through which the upper kite passed.

The tabulated record of observed readings at the surface station and of transcribed readings from the tracings of the kite meteorograph is shown in Table 1.

The weather map of the Weather Bureau for 8 a. m. of the 5th of April indicated the presence of an area of high barometric pressure over the Gulf States and the South Atlantic States, and over the Rocky Mountain Plateau. There was a well developed barometric depression over the Gulf of St. Lawrence, and a secondary depression over the middle Mississippi Valley. The area of cloudiness embraced the entire country east of the Rocky Mountains, with the exception of the South Atlantic States and the eastern portions of the Middle Atlantic and New England States. Rain was reported at 8 a. m. over a wide area surrounding the center of the secondary depression in the Mississippi Valley. A light sprinkling rain was falling at Mount Weather, the only station east of the Ohio River reporting rain at the time of the morning observation. The temperature steadily decreased from about 60° F. in the Gulf States and South Atlantic States to 30° F. in the St. Lawrence Valley and the upper Lake region.

At 10:10 a. m. the upper kite, supporting the Marvin meteorograph, broke away. As the kite was hidden by the clouds at the time, the accident was not at once discovered. The decreased pull of the wire at the reel and the diminished angular elevation of the lower kite soon revealed the fact, however, that something was wrong. The wire was rapidly reeled in,

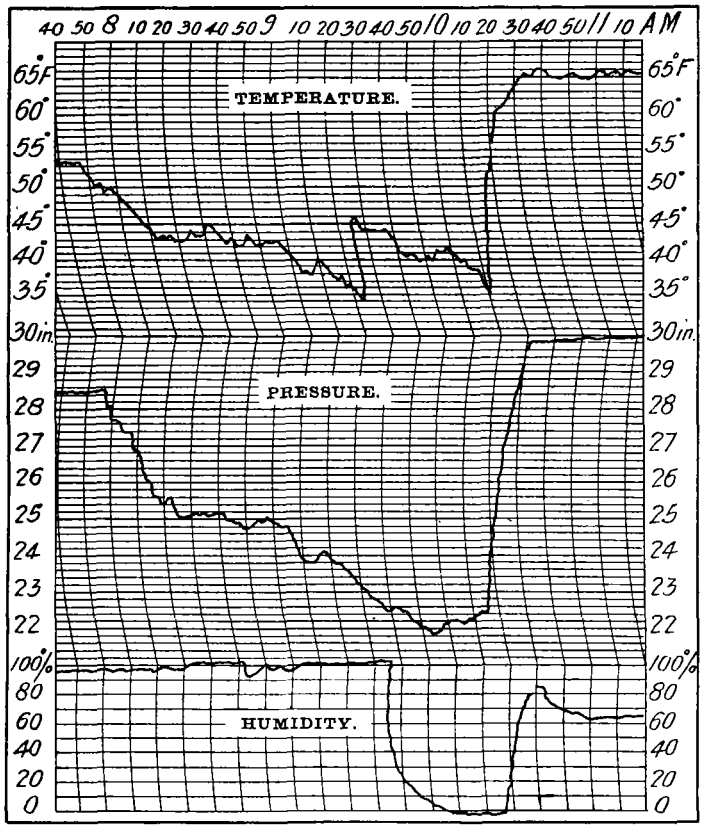

FIG. 1.—Meteorograph tracings for kite flight of April 5, 1906.

Kite flight at Mount Weather, Bluemont, Va., April 5, 1906.

At kite.						At station.					Remarks.
Time.	Above sea level.	Pressure.	Temperature.	Relative humidity.	Wind direction.	Pressure.	Temperature.	Relative humidity.	Wind. Dir.	Wind. Vel.	
a. m.	*Feet.*	*Ins.*	*° F.*	*%*		*Ins.*	*° F.*	*%*		*m. p. h.*	
7:47	1725	28.2	53	95	n w.	28.2	53	82	n w.	21	Cloudiness, 10 stratus, with occasional light sprinkling rain.
7:49	2155	27.8	51	96	.....	.....	.....	.....	.....	.....	
7:53	2565	27.2	49.5	97	.....	.....	.....	.....	.....	.....	
7:56	2925	27.0	48.8	98	w-n w	.....	.....	.....	.....	.....	
8:00	3440	26.5	48	99	w.	28.2	52	....	n w.	15	
8:04	4210	25.8	46.5	99	.....	.....	.....	.....	.....	.....	
8:10	4920	25.2	43	99	.....	.....	.....	.....	n.	.....	Kite entered scud; reappeared several times.
8:14	5260	24.9	42	100	.....	.....	52	....	n w.	9	
8:50	5580	24.7	41	98	w.	.....	53	85	....	.....	Second kite attached.
9:07	6590	23.9	37	100	.....	.....	.....	.....	.....	.....	First kite at base of clouds.
9:12	6200	23.7	39	100	.....	.....	53	....	n w.	9	
9:24	7330	22.6	34	100	.....	.....	.....	.....	.....	.....	First kite hidden at times by lower clouds.
9:29	8025	22.3	44	34	.....	.....	54	....	n w.	16	
9:37	8220	22.0	43.5	10	.....	.....	.....	.....	.....	.....	
9:45	9000*	21.6	40	2	.....	.....	54	....	w.	12	
10:08	.....	22.2	38	0†	.....	28.15	55	...	n w.	12	Upper kite with meteorograph broke away while hidden by cl'ds.
10:22	.....	29.5	59.5	85	.....	.....	56	....	n w.	11	Landed in valley about 12 miles due east from station.

* Based on barograph tracing; other elevations based on angular elevation of kite and length of wire out. † A correction of 5 to 8 per cent should probably be applied to the lower portion of the scale of the hair hygrometer.

NOTE.—Number and kind of kites: 2 Hargrave-Marvin kites with a total lifting surface of 98 square feet. Station elevation, 1725 feet. Greatest elevation above station, 7300 feet. Greatest elevation above sea level, 9000 feet. Greatest length of wire out, 11000 feet

and the loss of the upper kite was then soon made evident. The kite broke away at an elevation of about 7000 feet above the station. It was found the following morning at a point in the valley about 12 miles due east from the observatory. The meteorograph traces showed clearly the time at which the kite broke away and the time at which it struck the ground; a difference of about eleven minutes indicates an average velocity of the kite after it broke away of over one mile per minute. The accident was due to the breaking of the steel wire at the point of attachment of the upper kite. In landing the second kite, the length of the line between the upper and lower kites (about 5000 feet) was stretched across the tops of the forest trees on the mountain side, and was reeled in without any difficulty and without loss. The upper kite landed upon some rocks in the valley, breaking some of the sticks; the instrument was not injured in the slightest degree, while the record was distinct and complete. The tracings of the meteorograph are reproduced in fig. 1.

WHERE ARE THE OLD RECORDS OF HAITI?

The efforts lately made by the Editor and his colleagues to collect and publish such data as we can, relative to the climate of Haiti, have led us to hope that we may recover the elaborate records kept in that country by its French residents between 1750 and the Napoleonic era. These records were collected most assiduously both by Cotte in Paris and by Moreau de St. Méry. The latter published extracts in his Description Topographique, printed at Philadelphia in 1797. The former published tabular data in full in the annual volumes of the Histoire de la Société royale de Médicine and also in his Météorologie, but he must have had large manuscript collections that are not yet published. The following letter from a member of the council of the Astronomical and Meteorological Society of Port au Prince shows that antiquarians may still hopefully search for these lost documents in New Orleans, La., in Philadelphia, Pa., and in France:

[Translation.]

PORT AU PRINCE, *August 24, 1905.*

CONSTANTIN,
Director of the Observatory of the Astronomical and Meteorological Society of Port au Prince.

MY DEAR BROTHER: In reply to your communication in regard to the meteorological observations of Le Febure des Hayes, made from 1772 to 1788 at Tivoli, or Tifoly, in the parish of Jeremie, I would say to you that I have already instituted a search on this same subject for Mr. Leger, our minister to Washington, but I found nothing.

If Mr. Le Febure des Hayes had willed his manuscript to the club of the Philadelphians and to the Royal Society of Sciences and Arts in the same town,[1] these papers should be in France. In 1803 the French, in evacuating the Cape, did not leave anything in the colony they were forced to abandon, but took with them all the archives of this portion of the French Empire.

The memoirs or studies, as far as published either by the Royal Society or by the club, may be found in New Orleans, La., and in Philadelphia, Pa.; these two American cities received a great many French people after the evacuation of Santo Domingo. In Europe everything relating to the old colonies will be found in the archives of Versailles; at the Academy of Sciences of Paris; at the Academy of Bordeaux; at Brussels, at Mr. Haylaerts's, who was formerly consul from Haiti to the residence in that city. I know that Mr. Haylaerts collected a great many documents relative to the ancient colony of Santo Domingo and to the independent state of Haiti. There were a great many works on Haiti at the Library of Americana, Rue Gusuégan. I do not know whether this establishment is still in existence. At Port au Prince there are a great many pamphlets, books, thin bound books, notes, and memoirs, in the library of the Little Seminary of St. Martial (Petit Séminaire St. Martial), to which Lieutenant Pradiness had confided a part of his collection.

I shall be happy if this information is of any use to the meteorological bureau at Washington. In this hope I beg you to accept, dear brother, the assurance of my most affectionate sentiments.

(Signed) JUSTIN BOUZON.

THE ZODIACAL LIGHT.

By Mr. MAXWELL HALL. Dated Montego Bay, Jamaica, W. I., February 12, 1906.

It is now thirty years since I first measured the breadth of the zodiacal light at various distances from the sun. The observations were made at Kempshot, Jamaica, at an elevation of about 1800 feet above sea level, and the results were pub-

[1] Le Cap or Cape Haïtien.